

NOT FOR PUBLICATION

**UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY**

MATSUSHITA ELECTRIC INDUSTRIAL
CO., LTD.,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD.,
et al.,

Defendants.

SAMSUNG ELECTRONICS CO., LTD.,
et al.,

Counterclaimants,

v.

MATSUSHITA ELECTRIC INDUSTRIAL
CO., LTD.,

Counterclaim Defendant.

Civ. No. 02-336 (GEB)

MEMORANDUM OPINION

BROWN, Chief Judge

This matter comes before the Court upon the patent infringement action between Plaintiff Matsushita Electric Industrial Co. Ltd. (“Matsushita”) and Samsung Electronics Co., Ltd. and its affiliates (collectively referred to as “Samsung”). A trial was held from July 31, 2006 to August 22, 2006. A jury determined issues of infringement, invalidity, and willfulness. On September 18, 2006, both parties filed motions for judgment as a matter of law and motions in the alternative for a new trial. The Court has decided the motions without oral argument pursuant to Federal Rule of Civil Procedure 78. For the reasons set forth below, the Court denies all motions.¹

¹ The Court hereby moots Defendants’ Rule 50(a) Motion for Judgment as a Matter of Law, filed on August 9, 2006, Defendants’ Rule 50(a) Motion for Directed Verdict, filed on August 21, 2006, and Plaintiff’s Rule 50(a) Motion for Judgment as a Matter of Law, filed on August 21, 2006.

I. BACKGROUND

Since much of the factual background and procedural history of this case has been addressed at length in this Court's prior opinions, the Court will only address the essential facts here. On January 25, 2002, Plaintiff Matsushita brought suit against Samsung for infringement of three of Matsushita's semiconductor patents.² In particular, Matsushita asserted that Samsung's products infringed U.S. Patent No. 5,053,998 ("the '998 Patent"), U.S. Patent No. 5,375,095 ("the '095 Patent"), and U.S. Patent No. 5,475,648 ("the '648 Patent") (collectively referred to as "the Matsushita Patents"). Samsung counterclaimed, alleging infringement by Matsushita of five of its own semiconductor-related patents. Since then, counterclaims relating to four of the patents have been withdrawn or dismissed, and only claims relating to U.S. Patent No. 5,751,048 ("the '048 Patent") remain.

These issues were tried before a jury in August 2006. On August 25, 2006, the jury returned its verdict, finding that Samsung had not infringed any claim of the '998, '095, or '648 patents, and that the '648 patent was valid. In addition, the jury found that all the asserted claims of the '095 patent (claims 1 through 4, 6 and 7), and all the asserted claims of the '998 patent (claims 1, 4 and 7), were invalid as both anticipated and obvious to one of ordinary skill in the art at the time the application was filed. Finally, the jury found that the '048 patent was valid and that it had not been infringed by Matsushita. *See* Jury Verdict Form.

On September 18, 2006, Samsung filed a Rule 50(b) Motion for Judgment as a Matter of Law After Trial on Infringement of the '048 Patent and Invalidity of the '648 Patent, or in the Alternative,

² The case was initially assigned to the Newark vicinage. On December 5, 2005, the matter was reassigned to the undersigned in Trenton.

Motion for New Trial on Those Issues. On the same day, Matsushita filed a Rule 50(b) Motion for Judgment as a Matter of Law, and a separate Rule 59 Motion in the Alternative for a New Trial.

II. STANDARD

A. Motion for Judgment as a Matter of Law

A motion for judgment as a matter of law under Federal Rule of Civil Procedure 50(b) “should be granted only if, viewing the evidence in the light most favorable to the nonmovant and giving it the advantage of every fair and reasonable inference, there is insufficient evidence from which a jury reasonably could find liability.” *Lightning Lube, Inc. v. Witco Corp.*, 4 F.3d 1153, 1166 (3d Cir. 1993); *Mandile v. Clark Material Handling Co.*, 131 Fed. Appx. 836, 838 (3d Cir. 2005). “In determining whether the evidence is sufficient to sustain liability, the court may not weigh the evidence, determine the credibility of witnesses, or substitute its version of the facts for the jury’s version.” *Lightning Lube*, at 1166, citing *Fineman v. Armstrong World Indus., Inc.*, 980 F.2d 171, 190 (3d Cir. 1992).

“The question is not whether there is literally no evidence supporting the party against whom the motion is directed but whether there is evidence upon which the jury could properly find a verdict for that party.” *Lightning Lube*, at 1166, quoting *Patzig v. O’Neil*, 577 F.2d 841, 846 (3d Cir. 1978); see also *Raiczyn v. Ocean County Veterinary Hospital*, 377 F.3d 266, 268 (3d Cir. 2004) (“A judge may overturn a jury verdict only when, as a matter of law, the record is critically deficient of that minimum quantity of evidence from which a jury might reasonably afford relief.”) (quotations omitted).

B. Motion for New Trial

“Rule 59(a) of the Federal Rules of Civil Procedure allows a party to seek relief from a

judgment by filing a motion for a new trial.” *Winnicki v. Bennigan’s*, No. 01-3357, 2006 U.S. Dist. LEXIS 61206, at *2 (D.N.J. Aug. 28, 2006). “New trials because the verdict is against the weight of the evidence are proper only when the record shows that the jury’s verdict resulted in a miscarriage of justice or where the verdict, on the record, cries out to be overturned or shocks our conscience.” *Vargo v. Coslet*, 126 Fed. Appx. 533, 534 (3d Cir. 2005), *quoting Klein v. Hollings*, 992 F.2d 1285, 1290 (3d Cir. 1993). “Grounds upon which a new trial may be granted include: 1) that the verdict is against the weight of the evidence; 2) that the damages are excessive; or 3) that the district court made substantial errors in the admission or rejection of evidence or in its instructions to the jury.” *Winnicki*, at *3, *citing Montgomery Ward & Co. v. Duncan*, 311 U.S. 243, 251 (1940). The district court has discretion whether or not to grant a new trial. *Winnicki*, at *2, *citing Wagner v. Fair Acres Geriatric Ctr.*, 49 F.3d 1002, 1017 (3d Cir. 1995).

III. DISCUSSION

A. Samsung’s Motion for Judgment as a Matter of Law.

1. *Matsushita’s alleged infringement of Samsung’s ‘048 patent.*

Samsung claims to have shown that “Matsushita’s accused devices meet each and every element and limitation of claims 1 and 2 of its U.S. Patent No. 5,751,048 (“‘048 Patent’”), and argues that any reasonable jury would therefore have found that Samsung had proved infringement of the ‘048 patent by a preponderance of the evidence. Samsung Br. 2. The Court disagrees.

Patent infringement entails a two-step process. *Research Plastics, Inc. v. Fed. Packaging Corp.*, 421 F.3d 1290, 1295 (Fed. Cir. 2005). The first step, claim construction, involves the determination of the scope and meaning of the patent claims. *Id.* Claim construction is a matter of law. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977 (Fed. Cir. 1995) (*en banc*), *aff’d*,

517 U.S. 370 (1996). Second, the allegedly infringing device must be compared against the properly construed claim. *Research Plastics*, 421 F.3d at 1295. In order to succeed on a claim of literal infringement, the patentee must prove by a preponderance of evidence that an accused device contains “each and every limitation set forth in a claim.” *Frank’s Casing Crew & Rental Tools, Inc., v. Weatherford Intn’l Inc.*, 389 F.3d 1370, 1377 (Fed. Cir. 2004). This step requires a factual determination. *Id.* This Court has already construed the disputed claims terms identified by the parties in its *Markman* Opinion and Order. It need therefore only assess whether a reasonable jury could have found that Samsung failed to prove that Matsushita’s products contain each and every limitation set out in claims 1 and 2 of the ‘048 patent.

Claims 1 and 2 of the ‘048 patent, claim the following:

1. A semiconductor device with a gate structure, said semiconductor device comprising:

a gate insulating layer formed on a semiconductor substrate;

a gate structure having a first conductive layer of polycrystalline silicon and a second conductive layer of refractor metal silicide, said first conductive layer being formed on said gate insulating layer and said second conductive layer being formed on said first conductive layer, said second conductive layer having a recessed edge portion with respect to an edge portion of said first conductive layer; and

a first insulating layer formed on a top surface of said second conductive layer and having a protrusion portion with respect to an edge of said second conductive layer.

2. A semiconductor device according to claim 1. further comprising a source region and a drain region adjacent to said gate structure, and a second insulating layer formed on at least part of said first insulating layer, on said edge portion of said recessed second conductive layer and on said edge portions of said first conductive

layer and said first insulating layer.

Jury Binder, Ex. 4. The issues left to the jury were: (i) whether Matsushita's accused products include a "recessed edge portion" as recited in claim 1, (ii) whether Matsushita's products include a "protrusion portion" as recited in claim 1, and (iii) whether Matsushita's products include a "second insulating layer" as recited in claim 2. *See* Jury Instruction No. 27.

Samsung claims that Dr. Hess proved, by relying on microphotographic evidence and Matsushita's schematics of its product, that all three limitations of the '048 claims at issue were present in Matsushita's product. Samsung Br. 2-6. In addition, Samsung argues that Matsushita's responses to its Requests for Admission contain an admission by Matsushita that the accused products "included a second insulating layer formed on the top surface of the first insulating layer." *Id.* at 6. Finally, Samsung argues that Matsushita's expert, Dr. Noble, testified that Matsushita's NSG layer was in fact "an insulating layer formed on all the surfaces required by claim 2." *Id.*

Matsushita, however, responds that the evidence relied upon by Samsung to make its case of infringement was unreliable and lacked credibility. Matsushita Opp'n Br. 3-5. Matsushita highlights first of all the fact that Dr. Hess had little experience with the method used to obtain the microphotographs and, indicates that the testimony offered at trial reveals that the microphotographs were not clear enough for Dr. Hess to reliably identify distinct insulating layers. In addition, Matsushita argues that Dr. Hess' testimony established that the technique used to obtain the microphotographs leads to the artificial creation of what appears to be a recessed edge. *Id.* at 5.

Second, Matsushita argues that it was made apparent to the jury that the exhibits relied upon by Samsung to prove infringement of the '048 patent did not depict the final Matsushita product at issue. *Id.* at 6. It contends that much of the evidence provided by Matsushita tends to indicate that

the transistors described in the documents put forth by Samsung were in fact prototypes or experimental samples, rather than the actual product marketed by Matsushita. *Id.* at 7.

Third, Matsushita explains that Dr. Hess' testimony on the alleged "second insulating layer" in Matsushita's product was unconvincing. Matsushita explains that Dr. Hess acknowledged that the NSG layer in Matsushita's product made up the second insulating layer, and that the parties had agreed that the second insulating layer was to be defined as the layer "that prevents the flow of direct electric current." *Id.* at 7-8. Matsushita asserts that, since Dr. Noble testified that the NSG layer "is not the layer that prevents direct current flow since it is not in contact with either conductor," the NSG layer cannot constitute the "second insulating layer" claimed in the '048 patent. *Id.* at 8. Finally, Matsushita argues that the testimony of Mr. Nishimura – the manager of the factory responsible for the manufacture of the products alleged to infringe the '048 patent demonstrated that the production method relied upon by Matsushita could not lead to the formation of a recessed edge or protrusion portion. *Id.* at 8-9.

Reviewing all evidence in the light most favorable to the non-movant, this Court holds that the jury could reasonably have found that Matsushita's product does not contain a recessed edge, a protrusion portion, or a secondary insulation layer. The Court therefore denies Samsung's motion for judgment as a matter of law with respect to Samsung's allegations of infringement of the '048 patent.

2. *The alleged invalidity of Matsushita's '648 patent*

Samsung claims it has provided conclusive evidence at trial that Matsushita's '648 patent is invalid: (i) as anticipated by the prior art, (ii) as obvious, (iii) as failing to meet the written description requirement of 35 U.S.C. § 112, or (iv) as failing to meet the enablement requirement

of 35 U.S.C. § 112. Samsung Br. 8-14. Samsung argues that a reasonable jury would therefore have found that Matsushita had proved the invalidity of the ‘648 patent by clear and convincing evidence. The Court disagrees.

a. Anticipation

Under 35 U.S.C. § 102, a person is entitled to a patent unless the invention was “described in a printed publication in this or a foreign country . . . more than one year prior to the date of the application for patent in the United States.” 35 U.S.C. § 102(b). A finding of invalidity based on anticipation under 35 U.S.C. § 102 requires a determination that “each and every limitation is found either expressly or inherently in a single prior art reference.” *PIN/NIP, Inc. v. Platte Chem. Co.*, 304 F.3d 1235, 1243 (Fed. Cir. 2002) (quoting *Celeritas Techs., Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1360 (Fed. Cir. 1998)). Because a patent that was issued by the PTO enjoys a presumption of validity, the evidence supporting such a finding must be clear and convincing. *Id.* Whether a patent is anticipated by a prior art reference is a question of fact. *Schumer v. Lab. Computer Sys.*, 308 F.3d 1304, 1315 (Fed. Cir. 2002).

Samsung argues that Claim 1 of the ‘648 patent is anticipated by the Furutani reference.

Samsung Br. 8. Claim 1 states as follows:

1. A semiconductor memory device with a plurality of primary memory cells and a plurality of spare memory cells, the semiconductor memory device comprising:

decoder means for interconnecting the primary memory cell and the spare memory cell through a shared decode line which is driven through a shared word line drive signal generating circuit; and

memory replacement means coupled to said decoder means for storing in advance an address of a defective memory cell of the

plurality of primary memory cells and makes, when an address signal corresponding to a memory cell to be accessed agrees with the address of the defective memory cell, the decoder means operates to select the spare memory cell to replace the defective primary memory cell.

Jury Binder Ex. 3. Samsung claims that the ‘648 patent is anticipated because (i) the Furutani reference includes all of the limitations of Embodiment IV of Claim 1, or in the alternative, (ii) because the ‘715 patent and Fujishima patents include all the limitations the ‘648 patent’s Embodiment II, in particular since that Embodiment requires a “redundancy encoder.” Samsung Br. 8-9.

Matsushita, however, explains that Mr. Taylor’s trial testimony established that the “Furutani reference does not disclose a decode signal switching circuit,” and does not include shared decode lines. Matsushita Opp’n Br. 13-14. In addition, Matsushita claims that Samsung’s own expert, Dr. Hoffman, testified that neither the Fujishima nor the ‘715 patent anticipate the ‘648 patent, as neither reference claims the redundancy encoder of Embodiment II. *Id.* at 15.

Finally, Matsushita argues that the testimonies of both Dr. Hoffman and Mr. Taylor reveal that the ‘715 patent does not disclose the memory cell block selection switching circuit of Embodiment II. *Id.* at 15-17. Matsushita cites in particular Mr. Taylor’s statement that “[t]he Fujishima Patent is missing three elements. There’s no cross block replacement, there’s no memory cell block selection switching circuit and there’s no shared decoder line.” *Id.* at 17.

Reviewing the evidence in the light most-favorable to non-movant, this Court finds that a reasonable jury could have found that Samsung had failed to prove that Matsushita’s ‘648 patent was invalid as anticipated by prior art. The Court therefore denies Samsung’s motion for motion for judgment as a matter of law on the issue of anticipation of the ‘648 patent.

b. Obviousness

Samsung argues that it has shown that the ‘648 is rendered obvious by prior art references and that any reasonable jury would therefore have found that Samsung had proved invalidity by clear and convincing evidence. This Court disagrees.

Under 35 U.S.C. § 103(a),

[a] patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. 103(a). “[Courts] thus consider whether a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and whether there would have been a reasonable expectation of success in doing so.” *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, No. 06-1088, 2006 U.S. App. LEXIS 24642, at *9 (Fed. Cir. Oct. 3, 2006), *citing Brown & Williamson Tobacco Corp. v. Philip Morris, Inc.*, 229 F.3d 1120, 1124 (Fed. Cir. 2000).

“[O]bviousness depends on (1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the art; and (4) any relevant secondary considerations, including commercial success, long felt but unsolved needs, and failure of others.” *Dystar*, at *9, *citing Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). Given the presumption of validity surrounding a patent granted by the PTO, invalidity of the patent through obviousness must be proven by clear and convincing evidence. *PIN/NIP, Inc. v. Platte Chem. Co.*, 304 F.3d 1235, 1243 (Fed. Cir. 2002).

Samsung makes little more than conclusory allegations of obviousness, simply claiming that

the evidence presented at trial established that the ‘648 patent was “obvious in view of the combination of the . . . ‘715 Patent and the Fujishima patent.” Samsung Br. 10. As highlighted by Matsushita, however, Samsung failed to adequately illustrate how “a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention,” and did not address the issue of whether there would have been a reasonable expectation of success in doing so. Matsushita Opp’n Br. 18-19.

Reviewing the evidence in the light most favorable to non-movant, the Court therefore finds that a reasonable jury could have found that the ‘648 patent was not rendered obvious by prior art. This Court will deny Samsung’s motion for judgment as a matter of law on this issue.

c. Description and Enablement

Finally, Samsung argues that the ‘648 patent should be deemed invalid because it allegedly fails to meet both the description and enablement requirements of 35 U.S.C. §112. This Court disagrees.

The written description and enablement requirements are set out in 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. § 112.

i. Written Description

Courts have interpreted the written description requirement of 35 U.S.C. § 112 to require that the “disclosure as originally filed must convey with reasonable clarity to those skilled in the art that

[another] was in possession of the invention.” *In re Reiffin*, No. 06-1063, 2006 U.S. App. LEXIS 25246, at *5 (Fed. Cir. Oct. 6, 2006) (quotations omitted), *quoting Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991).

Samsung insists that while Matsushita claimed that the “key inventive features of the ‘648 Patent were the use of shared decode lines and cross-block or out-of-block replacement,” the ‘648 patent in fact included *separate* claims to “shared decode lines” and “cross-block replacement.” Samsung Br. 11. Samsung claims that the testimony of Dr. Hoffman proved that Embodiment II of the ‘648 patent was directed only to the “cross-block replacement” feature, not the “shared decode lines,” *id.* leading to the conclusion that the ‘648 patent “fails to meet the written description requirement for the “shared decode lines” Embodiment II claim limitation.” *Id.* at 12.

Matsushita, however, responds that the testimony of Mr. Taylor showed to the jury that the figures for all the embodiments of the ‘648 patent depict “a single row decoder for each memory cell block, clearly indicating that all Embodiments including Embodiment II must include the shared decode line.” Matsushita Opp’n Br. 22. Matsushita also argues that the testimony of Mr. Fujiwara demonstrated to the jury that the “presence of the shared decode line in Embodiment II is necessarily implied in the specification of the ‘648 patent.” *Id.*

Reviewing all evidence in the light most favorable to non-movant, this Court finds that a reasonable jury could have found that the written description requirement of 35 U.S.C. § 112 had been met. The Court must dismiss Samsung’s motion for judgment as a matter of law on this issue.

ii. Enablement

The enablement requirement of 35 U.S.C. § 112 “is met if the description enables any mode of making and using the invention.” *Invitrogen Corp. v. Clontech Labs., Inc.*, 429 F.3d 1052, 1071

(Fed. Cir. 2005), *quoting John Hopkins Univ. v. Cellpro, Inc.*, 152 F.3d 1342, 1361 (Fed. Cir. 1998). “[A] patent must enable any person skilled in the art to make and use the invention without undue experimentation.” *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1337-38 (Fed. Cir. 2006) (quotations omitted). “Enablement does not[, however,] require the inventor to foresee every means of implementing an invention at pains of losing his patent franchise.” *Invitrogen*, at 1071.

Setting forth arguments largely mirroring those it set forth in its discussion of the “written description” requirement, Samsung claims that the evidence it presented at trial showed that “the ‘648 Patent fails to teach one of ordinary skill in the art how to make and use the claimed invention using “shared decode lines” as required by Embodiment II.” Samsung Br. 13. Matsushita responds, however, that the testimony of Samsung’s expert Mr. Hoffman did not indicate that the implementation of the shared decode line in the row decoder for Embodiment would require undue experimentation. Matsushita Br. 23. Matsushita also notes that both Mr. Fujiwara and Mr. Taylor were able to demonstrate the implementation of the shared decode line using the disclosures and figures in the ‘648 patent. *Id.* at 24.

Reviewing all evidence in the light most favorable to the non-movant, the Court therefore finds that a reasonable jury could have found that the ‘648 patent met the enablement requirement of 35 U.S.C. § 112. The Court will deny Samsung’s motion for judgment as a matter of law on this issue.

B. Matsushita Motion for Judgment as a Matter of Law

1. Samsung’s Infringement of the ‘998 Patent

Matsushita argues that the evidence presented at trial proved that Samsung had infringed claims 1, 4 and 7 of the ‘998 patent, and that any reasonable jury would therefore have found that

Matsushita had proved infringement of the '998 patent by a preponderance of the evidence. This Court disagrees.

This Court had established prior to the trial that the jury was to determine: (i) whether Samsung's DRAM products (other than Samsung's Type 1 commodity DRAM products) include the "opposite ends" element of Claims 1 and 4 of the '998 Patent, and (ii) whether Samsung's DRAM products include the "restore/drive signal line" elements of Claims 1, 4 and 7 of the '998 patent. *See* Jury Instruction No. 27.

Matsushita first argues that Mr. Taylor's trial testimony, based on Samsung's product schematics and the deposition testimony of Samsung's 30(b)(6) representative, proved that Samsung's products contain the "drive signal" and "restore signal" lines. Matsushita Br. 6-7.

Second, Matsushita states that it "introduced undisputed evidence that Samsung's products satisfy the "opposite ends" limitation of Claims 1 and 4 of the '998 Patent." *Id.* at 8. Matsushita claims in particular that Mr. Taylor showed that Samsung's products infringe claims 1 and 4 of the '998 Patent because, "in addition to having restore and drive signal lines, [the products have] sense amplifier drivers at *opposite ends* of the drive and restore signal lines." *Id.* at 8 (emphasis added). Matsushita states that Samsung's cross-examination of Mr. Taylor only addressed one type of accused product, leaving Matsushita's allegations as to all other products uncontested. *Id.* at 8-9.

Samsung, however, argues that the evidence it presented at trial showed that the Court's *Markman* ruling required that the electric current flow on the signal lines must *cause* the differential amplifiers to operate, and that Matsushita failed to offer any evidence that such a causation relationship existed. Samsung Opp'n at 8. Samsung also claims that Mr. Taylor's testimony was riddled with inconsistencies, any one of which could have led the jury to discredit his testimony.

Id. at 9-10.

Viewing all evidence in light most favorable to non-movant, this Court finds that a reasonable jury could have found that Samsung had not infringed the '998 patent. The Court will therefore deny Matsushita's motion for judgment as a matter of law on this issue.

2. *Samsung's Infringement of the '095 Patent*

Matsushita argues that the evidence presented at trial proved that Samsung had infringed claims 1, 2, 3, 4, 6 and 7 of the '095 patent, and that any reasonable jury would therefore have found that Matsushita had proved infringement of the '095 patent by a preponderance of the evidence. This Court disagrees.

The Court had required the jury to determine: (i) whether Samsung's DRAM products include the "electrically isolated" element of independent claim 1 of the '095 patent, (ii) whether Samsung's DRAM products include the "interconnected by through-hole connections in each of a plurality of connection regions" element of Claim 6 of the '095 patent, and (iii) whether Samsung's DRAM products include the "part of a substrate" element of Claims 2, 3, 6 and 7 of the '095 Patent. *See* Jury Instruction No. 27. The jury found that Samsung had not infringed any of the '095 patent claims.

Matsushita argues first that Mr. Taylor's testimony established that "all of Samsung's products have voltage supply power meshes that are "electrically isolated in the manner described by the '095 Patent." Matsushita Br. 9-10. Matsushita also claims that Mr. Taylor's testimony proved that Samsung's products meet the "upper layer of a substrate/lower layer of a substrate" limitation. *Id.* at 10. Matsushita further argues that Samsung did not question Mr. Taylor at all on the issue of whether or not the limitation was satisfied in the Samsung products. *Id.* at 10-11.

Finally, Matsushita claims that Mr. Taylor's testimony demonstrated that Samsung's accused products included "the arrangement of unit memory cell blocks, unit sense amplifier blocks, sense amplifier drive circuits, as well as the power mesh arrangement required by the '095 patent," and that the products' upper and lower layers are "interconnected by through-hole connections." *Id.* at 11.

In response, Samsung argues that the testimony of Mr. Hwang, Samsung's DRAM engineer, showed that there are circuits, capacitors or resistance devices between the power meshes of Samsung's products, and that there would therefore be electrical current between the meshes. Samsung Opp'n at 6. Samsung also claims that Mr. Taylor's testimony showed that the power meshes in Samsung's DRAMs are connected by capacitors, and are thus not "electrically isolated." *Id.* In addition, Samsung asserts that the testimony of a third-party reverse engineering company hired by Matsushita showed that it "did not report any electrically isolated meshes in Samsung's DRAM products." *Id.* at 6-7. Finally, Samsung argues that its product cannot be held to infringe claims 6 and 7, as those claims require word line strapping. Indeed, Samsung argues that its products were shown at trial not to rely on any such device, as the word lines in Samsung's products are not connected directly using through-holes, but depend instead on transistor connections. *Id.* at 7-8.

The Court therefore finds that there was evidence presented at trial to show that Samsung's products did not include the "electrically isolated" element of the '095 patent's claim 1, that the Samsung DRAM products did not include the "interconnected by through-hole connections" element of claim 6, and did not include the "part of a substrate element of claims 2, 3, 6 and 7. Reviewing all evidence in the light most favorable to non-movant, this Court finds that a reasonable jury could have found that Samsung had not infringed the '095 patent. The Court will deny Matsushita's

motion for judgment as a matter of law on this issue.

3. *Samsung's Infringement of the '648 Patent*

Matsushita argues that the evidence presented at trial showed that Samsung had infringed claims 1 and 4 of the '648 patent, and that any reasonable jury would therefore have found that Matsushita had proved infringement of the '648 patent by a preponderance of the evidence. This Court disagrees.

The jury was asked to determine: (i) whether Samsung's SDRAM and Rambus DRAM devices include the redundancy use decision circuit and redundancy encoder of Embodiment II required by the memory replacement means as recited in claim 1 of the '648 patent, and (ii) whether Samsung's SDRAM devices include the redundancy use decision circuit and redundancy encoder of Embodiment II required by the memory replacement means as recited in claim 4 of the '648 patent. *See* Jury Instruction No. 27.

Matsushita claims first that both Mr. Taylor and Samsung's 30(b)(6) witness, basing their opinion on a wealth of different sources including circuit schematics provided by Samsung, testified that Samsung's products "contained both a redundancy-use decision circuit and a redundancy encoder." Matsushita Br. 12-13.

Second, Matsushita claims that Samsung's expert, Mr. Hoffman, "was unable to articulate any significant difference between Samsung's products and the '648 Patent." *Id.* at 15. Matsushita also alleges that Mr. Hoffman's testimony proved that there is no direct connection between the fuse boxes and the row decoder in Samsung's products. Indeed, Mr. Hoffman claimed that "a direct connection cannot exist if the DRAM contains a switching circuit," and the jury was presented with undisputed evidence that Samsung's products contain such a circuit. *Id.* at 15-16. Matsushita argues

that the jury was thus led to the conclusion that the circuitry after the fuse box on the diagram of the Samsung products must form the redundancy encoder. *Id.*

Samsung, on the other hand, argues that the testimony offered at trial boiled down to a battle of experts: Mr. Hoffman testified that Samsung's DRAM products do not contain redundancy encoders, whereas Mr. Taylor testified that they do. Samsung argues that the jury simply decided the issue based on the credibility of the experts. Samsung Opp'n at 12.

Reviewing all evidence in the light most favorable to non-movant, this Court finds that a reasonable jury could have found that Samsung had not infringed the '648 patent. The Court will deny Matsushita's motion for judgment as a matter of law on this issue.

4. *Validity of the '095 Patent*

The jury was asked to determine whether Claims 1, 2, 3, 4, 6, and 7 of the '095 patent were anticipated by prior art, and whether they were obvious in light of the prior art. *See* Jury Instruction No. 30. The jury found that the '095 patent was invalid on both grounds.

a. *Anticipation*

In contesting the jury's verdict, Matsushita argues that the evidence presented at trial demonstrated that the prior art, including the Childers and Hara patents, did not anticipate the '095 patent, and that any reasonable jury would have therefore have found the '095 patent to be valid.

Matsushita argues first that "Samsung submitted no evidence of any express teaching in the Childers patent of providing two drive circuits," Matsushita Br. 19, whereas Mr. Taylor expressly testified that the Childers patent could not be held to anticipate the '095 patent because the Childers patent does not reference distributed sense amplifier drive circuits. *Id.* Second, Matsushita claims that Mr. Taylor testified that the Childers patent related to NMOS technology and therefore could

not anticipate the CMOS DRAM- based '095 Patent. *Id.* at 20. Finally, Matsushita asserts that the jury was never shown any evidence that the Hara reference has the two-dimensional distribution claimed by the '095 patent, and cannot therefore have found it to anticipate claim 6 or 7 of the '095 patent.

Samsung, on the other hand, claims that both Mr. Taylor and Dr. Inoue conceded that the Childers Patent disclosed the use of power meshes prior to the '095 patent, and alleges that Mr. McAlexander acknowledged that the Childers patent disclosed the use of sense amplifier drive circuits connected to the power meshes by short signal paths. *Id.* at 18. Samsung further argues that substantial evidence was presented to the jury to show that a person of ordinary skill would know to apply the Childers teaching to a CMOS application.

Finally, Samsung claims that Mr. McAlexander testified that the Hara reference transfer gates were sense amplifier drive circuits under the Court's definition, that the Hara voltage source supply lines meet the Court's construction for voltage supply meshes, and that the Hara reference disclosed the word line strapping limitation. Samsung Opp'n 19. Samsung argues that this testimony would have lead the jury to conclude that the '095 patent had been anticipated.

Reviewing all evidence in the light most favorable to the non-movant, this Court finds that a reasonable jury could have found that the '095 patent was invalid as anticipated. The Court will deny Matsushita's motion for judgment as a matter of law on this issue.

b. Obviousness

Matsushita also argues that the evidence presented at trial demonstrates that the '095 patent was not rendered obvious by the prior art, and that any reasonable jury would therefore have found the '095 patent to be valid.

In particular, Matsushita claims that the evidence presented to the jury at trial failed to adequately address the “reasonable expectation of success” and “motivation to combine” elements of the obviousness standard. Matsushita Br. 23. Matsushita further argues that none of the testimony offered by Samsung indicated that the prior art discussed a two-dimensional distribution of the unit memory cell blocks, as required by claims 6 and 7. *Id.* at 26.

Samsung responds that Mr. McAlexander testified that the ‘095 Patent was obvious in light of the Pelley patent, the Chin paper, the Hitachi reference, and either the Childers patent or the Hara reference. Samsung Opp’n at 20. Samsung emphasizes in particular that Mr. McAlexander carefully analyzed each issue, claim by claim, explaining why each individual claim was not patentable. *Id.*

Reviewing all evidence in the light most favorable to the non-movant, this Court finds that a reasonable jury could have found that the ‘095 patent was valid. The Court will deny Matsushita’s motion for judgment as a matter of law on this issue.

5. *Validity of the ‘998 Patent*

The jury was asked to determine whether Claims 1, 4 and 7 of the ‘998 patent were invalid, either because they were anticipated by prior art, or because they were obvious in light of the prior art. The jury found that the ‘998 patent was invalid as both anticipated and obvious.

a. *Anticipation*

Matsushita claims that it was not proven by clear and convincing evidence at trial that the ‘998 patent was anticipated by prior art, and that any reasonable jury would therefore have found the ‘998 patent to be valid.

Matsushita, first, argues that while Mr. McAlexander testified that the figures in the Chin

patent disclosed the drive and restore signal lines of the '998 patent, his testimony lacked credibility and was inconsistent with the Court's claim construction. Matsushita Br. 27. Indeed, Matsushita claims that the Court's *Markman* Order dictates that the drive and restore signal lines carry current "which causes the differential amplifiers to operate." *Id.* In particular, Matsushita claims that by showing that Mr. McAlexander had not determined the amount of current in the S and Sbar lines, Matsushita proved to the jury that he could not possibly have reached a conclusion on the issue of whether the current would have been sufficient to "cause the differential amplifiers to operate." *Id.* at 28. Matsushita claims instead that the testimony of Mr. Taylor established convincingly that "the Chin Patent does not disclose the restore and drive signal lines as required by Claims 1, 4 and 7." *Id.*

Second, Matsushita argues that the jury should have found that '998 to be valid as "Samsung failed to establish that the Oki reference anticipates the '998 Patent because it does not include the claimed 'delay means.'" *Id.* at 29. In particular, Matsushita claims that Mr. McAlexander was only able to find the "delay means" on the Oki reference after modifying the diagram included in the reference.

Finally, Matsushita argues that it showed at trial that the Shikata reference does not anticipate the '998 patent, as the figures of the Shikata reference do not clearly establish the presence of a drive signal line and a restore signal line. *Id.* at 30. In addition, Matsushita claims that the reference cannot anticipate the '998 patent because it is based on NMOS technology, whereas the '998 patent relies upon CMOS technology. *Id.*

Samsung, on the other hand, argues that the Chin patent was shown to anticipate the '998 patent because Mr. Hwang and Mr. McAlexander testified at length that the "S and Sbar lines [were]

restore and drive signal lines on which current flows during the sensing operation and that this current causes the differential amplifiers to operate.” Samsung Opp’n Br. 21. In addition, Samsung argues that Mr. Taylor conceded “that the S and Sbar lines are electrically conducting lines that are connected to multiple differential amplifiers and that these lines have the required restore signal and drive signal on them during sensing.” *Id.* Finally, Samsung claims that the Oki reference anticipates the ‘998 patent as Mr. McAlexander’s testimony clearly established for the jury that the Oki reference disclosed sense amplifier drivers. Samsung explains that these sense amplifier drivers would have to be connected by wires, which would cause signaling delays and would thus amount to a disclosure of the required delay means.

Viewing the allegations in the light most favorable to non-movant, this Court finds that a reasonable jury could have found by clear and convincing evidence that the ‘998 patent was invalid. The Court will deny Matsushita’s motion for judgment as a matter of law on this issue.

b. Obviousness

Matsushita also claims that it was not proven by clear and convincing evidence at trial that the ‘998 patent was rendered obvious by prior art, and that any reasonable jury would therefore have found the ‘998 patent to be valid.

Indeed, Matsushita claims that Mr. McAlexander failed to offer any evidence of how a person of ordinary skill in the art would combine the Chin Patent, the Ichiguchi patent with the Oki reference or the Shikata reference to render the ‘998 Patent obvious. Matsushita Br. at 32. In addition, Matsushita claims that Mr. McAlexander did not “identify any reasonable expectation of success for any of these combinations.” *Id.*

On the other hand, Samsung claims that Mr. McAlexander testified that the Chin Patent and

the Ichiguchi reference taught the use of delay, and could have been combined with the Oki reference or the Shikata reference to render the '998 obvious. In particular, Samsung highlights the fact that Mr. McAlexander, in Samsung's view, "specifically explained how the references could be combined and what a person of skill in the art would expect from the combination." *Id.* at 24.

Viewing the evidence in the light most favorable to non-movant, this Court finds that a reasonable jury could have found by clear and convincing evidence that the '998 patent was invalid. The Court will deny Matsushita's motion for judgment as a matter of law on this issue.

3. *Validity of the '048 Patent*

Matsushita argues that it presented clear and convincing evidence at trial that the '048 patent was invalid, and claims that any reasonable jury would therefore have found that the '048 patent was invalid. This Court disagrees.

The jury was asked to determine whether Claims 1 and 2 of the '048 patent were invalid as anticipated by prior references, and whether they were obvious in light of the prior art. *See* Jury Instruction No. 31.

First, Matsushita claims that uncontested evidence was presented to the jury that the Sony publication contains all of the limitations of Claims 1 and 2 of the '048 patent, except for the recessed edge. Matsushita Br. 33. Matsushita argues that it then convincingly showed, through the testimony of Drs. Noble and Hess, that the Sony Publication did in fact disclose such a recessed edge portion. *Id.* at 33-34.

Second, Matsushita claims to have shown at trial that the NEC publication discloses all of the elements of Claims 1 and 2. *Id.* at 34. Indeed, Matsushita claims that Dr. Hess's expressed opinion that the NEC publication is not enabled and therefore cannot anticipate the '048 patent is

unconvincing. Indeed, Matsushita argues that it showed that the information Dr. Hess felt was missing from the NEC publication was also absent from the '048 patent, yet Dr. Hess deemed the '048 patent to meet the enablement requirement. The failure to include that information in the NEC publication, claims Matsushita, cannot therefore preclude that publication from being deemed enabled. *Id.* Moreover, Matsushita asserts that Dr. Noble's testimony clearly states that the NEC publication is enabled.

Samsung, on the other hand, argues that Dr. Hess' testimony in fact indicates that the Sony publication does not have the "recessed edge portion." Samsung Opp'n 15. Samsung argues that Matsushita mischaracterized Dr. Hess' testimony under cross-examination, as he only testified (i) that Matsushita's blow-up figure of the Sony structure was distorted, and (ii) that while the presence of a recessed edge portion is generally emphasized and exaggerated in diagrams, the Sony document did not show any such edge. *Id.* at 16. Finally, Samsung claims that Dr. Hess testified at length that the NEC document was not enabled because the etching method it would require was a method different from that necessary for the '048 patent process. *Id.* at 17.

Reviewing all evidence in the light most favorable to non-movant, this Court finds that a reasonable jury could have found that the '048 patent was valid. The Court will deny Matsushita's motion for judgment as a matter of law on this issue.

D. Matsushita's motion for a new trial

Matsushita requests a new trial: (i) on the grounds that the verdict was against the clear weight of evidence and was allegedly motivated by Samsung's counsel's urging the jury to disregard the verdict form; (ii) on the grounds that the verdict is facially inconsistent, and (iii) on the grounds that the jurors were misled by the Samsung's counsel's alleged misrepresentation of the Court's

claim construction.

1. *Verdict against the weight of the evidence.*

Matsushita argues that it presented uncontested evidence that the ‘998 patent was infringed by Samsung, and that Samsung failed to offer any expert testimony to suggest that the Samsung devices do not infringe the ‘998 patent. Matsushita R. 59 Br. 4. Matsushita states that Mr. Hwang, who had been designated as a witness who would testify about the ‘998 patents, did not in fact do so. *Id.* Finally, Matsushita claims that it offered evidence that the ‘095 patent was infringed, and that Samsung failed to offer any evidence to contradict or rebut that testimony. *Id.*

As discussed above, this Court finds that sufficient evidence was offered at trial for a reasonable jury to find that the neither the ‘095 patent nor the ‘998 patent were infringed. The jury’s verdict on these issues was therefore not against the weight of the evidence, and this Court will deny Matsushita’s motion for new trial on this ground.

2. *Samsung’s counsel argument to the jury.*

Matsushita first denounces Samsung’s counsel’s argument to the jury telling them to analyze the invalidity issues before addressing the infringement issue. *Id.* at 6. Matsushita also argues that the sequence and timing of the jury’s notes during deliberations indicate that the jury followed Samsung’s counsel’s suggested sequence. *Id.* at 6. Finally, Matsushita claims that even though it cannot determine with any certainty the order in which the jury addressed the issues presented to it, the fact that the jury ruled against Matsushita’s interests proves that Samsung’s counsel’s argument must have tainted the jury’s deliberations. *Id.* at 7.

The courts in this Circuit have held that “a party who fails to object to errors at trial waives the right to complain about them following trial.” *Waldorf v. Shuta*, 142 F.3d 601, 629 (3d Cir.

1998); *see also Wilson v. Vermont Castings, Inc.*, 170 F.3d 391 (3d Cir. 1991) (affirming decision of district court holding that party who had failed to object at trial to allegedly improper closing argument had waived the right to object to argument after trial); *Murray v. Fairbanks Morse*, 610 F.2d 149, 152 (3d Cir. 1979) (“Counsel’s failure to object precludes him from seeking a new trial on the grounds of the impropriety of opposing counsel’s closing remarks.”).

The Court therefore holds that by failing to object at trial to Samsung’s allegedly improper statements during closing argument, Matsushita waived its objection. The allegedly improper argument cannot be considered adequate grounds for a new trial.

3. *Verdict allegedly facially inconsistent.*

Essentially reiterating the argument it set out its motion for judgment as a matter of law, Matsushita claims that the jury’s finding that the ‘998 and ‘095 patents were invalid is simply untenable given the alleged lack of evidence offered by Samsung to support its claim of invalidity. This Court has already ruled that the evidence was sufficient for a reasonable jury to find that the ‘095 and ‘998 patents were invalid, and finds that the alleged lack of evidence offered by Samsung will not justify a new trial on these issues.

4. *Samsung’s counsel alleged misrepresentation of the Court’s claim construction.*

Matsushita asserts that Samsung’s counsel, in arguing against the infringement of the ‘648 patent, improperly claimed that the redundancy-use decision circuit “stores and makes a decision as to whether redundancy is needed.” Matsushita R. 59 Br. 13.

In particular, Matsushita argues that the allegedly improper instruction was inconsistent with this Court’s *Markman* Order, which does not require that the redundancy-use decision circuit make

such a decision. Matsushita claims that the jury's adoption of Samsung's counsel's definition of a redundancy-use decision circuit would have affected their finding of non-infringement of the '648 patent, as one of the issues presented to the jury was whether the accused devices included the redundancy-use decision circuit and the redundancy encoder. *Id.* at 14.

Once again, this Court finds that Matsushita has waived its objection to Samsung's counsel alleged misrepresentation, having failed to object to the representation at trial. *See Waldorf*, 142 F.3d at 629 (3d Cir. 1998). The Court will not therefore grant Matsushita's motion for new trial on this ground.

5. *Matsushita's allegations that the Court improperly excluded evidence that Samsung failed to obtain an opinion of Counsel regarding non-infringement.*

Matsushita finally argues that it was legal error for this Court to preclude Matsushita from inquiring whether Samsung had obtained an outside opinion regarding non-infringement. Matsushita R. 59 Br. 15. Matsushita argues that while "failure to obtain an opinion of counsel does not support an adverse inference that such an opinion was, or would have been unfavorable to the alleged infringer," *id.*, citing *Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1368 (Fed. Cir. 2006), information relating to such a failure is nonetheless relevant to the issue of the wilfulness of any infringement, and should have been admitted. Matsushita R. 59 Br. 15-16.

We need not address this Court's decision to exclude evidence that Samsung may have failed to obtain an opinion of Counsel regarding non-infringement, since the issue is mooted by the jury's verdict finding that none of the patents at issue in this case had been infringed. Thus, any argument that evidence relating to the claimed wilfulness of an alleged infringement that the jury found never occurred was erroneously excluded is moot, and cannot justify a new trial on the issue.

D. Samsung's Motion for New Trial

Samsung submitted a combined motion for judgment as a matter of law and, in the alternative, motion for new trial. Samsung's pleadings, however, offer little argument relating to its request for a new trial.

To the extent that Samsung's request for a new trial is predicated on the argument that it the jury's verdict was against the clear weight of the evidence, this Court will deny the request. While Samsung may argue that it showed by a preponderance of the evidence that the '048 patent was infringed, and by clear and convincing evidence that the '648 patent was invalid, this Court has held that sufficient evidence was offered at trial to justify the jury's verdict.

Samsung's pleadings also indicate, however, that its motion for a new trial may be predicated on two of the Court's evidentiary rulings. Indeed, Samsung appears to argue: (1) that letting Dr. Nobel testify as to the method of preparing the SEM and TEM samples was legal error justifying a new trial, on the grounds that Dr. Noble was not an expert in dry etching, and on the grounds that he relied on an animation which Samsung claims to be inaccurate, and (2) that it was legal error to allow Matsushita to contest the fact that its products included a second insulating layer formed on the top surface of the first insulating layer. Samsung Br. 6-7.

This Court finds no reason to overturn these evidentiary rulings. The Court further notes that, even if said rulings were incorrect, they did not result in the type of grievous harm to Samsung's presentation of its case sufficient to justify a new trial on these issues. *See Vargo v. Coslet*, 126 Fed. Appx. 533, 534 (3d Cir. 2005) (new trial warranted when it "resulted in a miscarriage of justice or where the verdict, on the record, cries out to be overturned or shocks our conscience."). The Court therefore denies Samsung's motion for new trial.

IV. CONCLUSION

For the foregoing reasons, this Court denies the parties' respective motions for summary judgment and motions for a new trial. An appropriate form of Order accompanies this Memorandum Opinion.

Dated November 2, 2006

s/ Garrett E. Brown, Jr.
GARRETT E. BROWN, JR., U.S.D.J.